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THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Andre SCHEELLEN, *et al.*

Application No. 09/115,229

Confirmation No.: 1150

Filed: July 14, 1998

For: POLYETHYLENE-BASED COMPOSITION  
AND PROCESS FOR THE MANUFACTURE  
OF ARTICLES SHAPED FROM THE  
COMPOSITION

Art Unit : 1772

Examiner: Rena Dye

Atty. Docket No. 32234-144216

Customer No.

26694

PATENT TRADEMARK OFFICE

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DEC 03 2003  
TC 1700

**BRIEF ON APPEAL**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

RECEIVED  
DEC 15 2003  
GROUP 3600

Sir:

This timely BRIEF ON APPEAL, is filed in triplicate, from the Final Rejection of February 4, 2003. Applicants hereby petition for a one-month extension. A one-month extension fee is also filed. Should the fee be missing, the Patent Office is authorized to charge the same to Deposit Account 22-0261 and advise our office accordingly.

A Notice of Appeal was timely filed with the requisite fee of \$320.00.

11/28/2003 HDENESS1 00000041 09115229

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330.00 DP

**REAL PARTY IN INTEREST**

This application is assigned to SOLVAY POLYOLEFINS EUROPE BELGIUM.

**RELATED APPEALS AND INTERFERENCES**

The undersigned is not aware of either any appeal or interference, the outcome of which would directly affect or be affected by or have a bearing on the Board's decision in this appeal.

**STATUS OF CLAIMS**

The claims 26-41 were finally rejected. Claims 1-7 and 9-25 were canceled in the December 10, 2002 AMENDMENT. Claims 26-41 were presented in that AMENDMENT.-

Although Applicants note with appreciation the Examiner's indication of potentially allowable subject matter, Applicants believe that they are further entitled to Claims the breadth of Claim 26.

**STATUS OF AMENDMENTS**

The AMENDMENT AFTER FINAL, dated August 1, 2003, was entered for the purposes of appeal.

## **SUMMARY OF INVENTION**

The invention relates to articles of manufacture which exhibit certain desirable properties; the properties are particularly under conditions of use.

The claims relate to pipe and pipe coupling(s). The materials used to make these articles include polyethylene based resins and talc. The claim 26 recites that the amount of talc is "...an amount of less than 1 part per 100 parts by weight of polyethylene [Claims 26]".

Applicants have found that the addition of such a small amount of talc to polyethylene compositions provides compositions with improved resistance to hydrostatic pressure and a markedly improved creep resistance (page 1, lines 21-23). Creep resistance is a measurement of hydrostatic pressure which applies against the inside surface of an article, *e.g.*, a pipe. (Applicants' August 2003 Amendment, page 6).

The addition of small amounts of talc of less than 1 part by weight per 100 parts by weight of high density polyethylene provides compositions which make possible the manufacture of shaped articles, such as pipes, for which the **creep resistance is significantly improved without affecting the other mechanical properties of the said shaped articles, such as the resistance to the slow propagation of cracks** (stress cracking or ESCR) (specification, page 2, lines 9-15). Consequently, the resins are very suitable for the manufacture of high pressure pipes (please see application, page 1, lines 15-23). The unexpected results were clearly demonstrated by the comparison of Example 1 (according to the invention) and Comparative Example (see Table I at page 8).

The Declaration of Andre Scheelen was filed on August 29, 2001. The results therein show that the addition of less than 1 part per 100 by weight of talc has particularly beneficial effects on the properties of polyethylene for pipes or pipe couplings, compared with compositions containing no talc or compositions containing in excess of 1 part per 100 parts of polyethylene. A copy of the Scheelen Declaration is attached.

**ISSUES**

Are the claims on appeal unpatentable under 35 U.S.C 103(a) over Jenkins et al. [U.S. Patent No. 5049411], hereinafter "Jenkins" ]?

Are the claims on appeal unpatentable under 35 U.S.C 103(a) over Wooster et al. U.S. Patent No. 5631069?

**GROUPING OF CLAIMS**

The arguments herein are commensurate with the scope of Claim 26. Individual Claims are patentable over the references

Claims 35, 36, 39 and 40, which specifically recite "creep resistance" are separately patentable over the references, because the claims refer to a property which is undescribed in the prior art of record.

Claims 28 and 38 are independently patentable over the references as the ranges of talc amounts are undescribed and irrelevant to the express provisions of the applied art.

## **ARGUMENT**

Since a polyethylene based composition containing less than 1 part talc per 100 parts by weight is undescribed in the applied art and since "Creep Resistance" is undescribed in the applied art, the grounds of rejections do not satisfy the criteria of a *prima facie* case of obviousness under Section 103. In fact, the record provides no evidence to indicate to the skilled person that adding less than 1 wt % of talc to a pipe composition –for any reason-- would have such a beneficial effect on the pipe properties and, accordingly, no incentive to do so.

The Patent Office policy concerning adjudication of issues under Section 103(a) of Title 35 is to undertake the factual inquiries of *Graham v. John Deere*. Accordingly, applicants will address the issues in terms of those factual inquiries.

No individual prior art reference describes or suggests the recitations in **Claims 26 or 38**. Accordingly, a combination of the description of the references does not result in Applicants' claimed subject matter. Legally, that deficiency dictates a decision that no *prima facie* case of obviousness is established by the Patent and Trademark Office [cf. *In re Vaeck*]:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. **Finally, the prior art reference (or references when combined) must teach or suggest all the Claim limitations.**

The teaching or suggestion to make the claimed combination and the reasonable

expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

While the prior art does not describe creep resistance, it further fails to suggest the polyethylene composition containing less than 1 part per 100 parts by weight of polyethylene of rejected **Claim 26**, and fails to suggest a polyethylene composition containing talc in an amount which does not exceed 0.5, as in **Claim 36**. If the prior art describes a range of 1-30 weight percent filler, that lower end point, the number 1, involves using 100% more talc than that number recited in the range of Claim 36. In summary, (a) there is no teaching, and the Examiner has presented no rationale to combine the references to arrive at the present invention, and (b) there is no teaching in the references that would lead one to expect the superior properties demonstrated by the invention.

**DETERMINATION OF THE SCOPE AND CONTENT  
OF THE REFERENCES AND THE DIFFERENCES**

The Claims presented herein are novel over the prior art. The MPEP Section 2131 dictates that a reference is not available to establish anticipation unless that reference describes each and every recitation of the Claim.

**1. Jenkins *et al***

Jenkins et al. relates to **films**. Accordingly, Jenkins et al. does not suggest compositions for making pipe and pipe coupling of Claims 26 *et seq.* The compositions of Jenkins are

completely different from those of the rejected Claims **which recite contents of less than 1 part of talc per 100 part of polyethylene.** Specifically, Jenkins et al. discloses compositions containing

- from about 50 to about 95 weight percent of HDPE,
- from about 5 to 40 weight percent of polyisobutylene, and
- **from about 1 to 30 weight percent** of a filler, **such as talc.**

**The content of talc in the Jenkins et al. compositions does not overlap with the range in the rejected Claims, and is expressed differently, *i.e.*, from about 1 to 30 weight percent of a filler such as talc.**

By way of explanation it is noted that, the theoretically disclosed compositions of **Jenkins et al** containing the maximum of HDPE (*i.e.* 95wt % of HDPE) and the minimum of talc (*i.e.*, 1 wt % of talc) have an amount of talc which is  $(1/95) \times 100 = 1.05$  **part of talc per 100 parts of HDPE.**

**4. Wooster et al.**

Wooster does refer to the inclusion of additives in a molded material, specifically stating that:

Although generally not required, the molded material of the present invention can also contain additives to enhance antiblocking and coefficient of friction characteristics including, but not limited to, untreated and treated silicon dioxide, talc, calcium carbonate, and clay, as well as primary, secondary and substituted fatty acid amides, release agents, silicone coatings, etc. Still other additives, such as quaternary ammonium compounds alone or in combination with

ethylene-acrylic acid (EAA) copolymers or other functional polymers, can also be added to enhance the antistatic characteristics of the polyethylene material of this invention. (Col. 14, lines 22-33.)

However, the reference in Wooster et al. to the inclusion of talc is only a general one. Accordingly, Applicants respectfully assert that Wooster et al. fails to render the claimed invention obvious for at least the following reasons, and is thus cumulative to Jenkins et al.

Wooster et al. fails to provide any teaching or suggestion with respect to the selection of talc from the broad category of additives and the (infinitely) large number of identified compounds. Wooster et al. teaches an open ended set of at least ten independent categories of additives for antiblocking and friction characteristics. Specifically, (1) untreated silicon dioxide, (2) treated silicon dioxide, (3) talc, (4) calcium carbonate, (5) clay, (6) primary fatty acid amides, (7) secondary fatty acid amides, (8) substituted fatty acid amides fatty acid amides, (9) release agents, and (10) silicone coatings. It is noted that at least categories (6)-(10) represent essentially unlimited numbers of components.

Wooster et al. does not teach that talc has a beneficial effect on the resistance to hydrostatic pressure or creep resistance.

### **THE DIFFERENCES**

As can be seen from the above discussion, Claim 26, and the claims dependent thereon, are not 'obvious ' within the meaning of 35 U.S.C. 103, as the references applied do not describe using small amounts of talc for any reason. The benefit of employing the small amounts of talc are described in the Examples of the application and in the Scheelen DECLARATION.

Claims 28 and 38 are independently patentable over the references as the ranges of talc amounts in these claims are undescribed and irrelevant to the express provisions of the applied art. Claims 28 and 38 are not 'obvious ' within the meaning of 35 U.S.C. 103, as the references applied do not describe using small amounts of talc for any reason, provide no motivation to do so, and no suggestion that such small amounts would be efficacious for any reason..

Claims 35, 36, 39 and 40, which specifically recite "creep resistance" are separately patentable over the references, because the claims refer to a property which is undescribed in the prior art of record.

#### **LEVEL OF SKILL IN THE ART**

The record does not establish that a person seeking to manufacture pipe would be led to applicants' invention.

##### **1. Jenkins *et al***

The compositions of the finally rejected Claims are not only novel in view of Jenkins, as:

- in the present invention: less than 1 part of talc is used per 100 parts of PE, and
- in Jenkins: at least 1.05 parts of talc per 100 parts of PE, is used.

but also the Claims are unobvious over Jenkins.

The only suggestion in Jenkins et al. is to dilute the polyethylene in the Jenkins et al compositions with talc. The Jenkins et al. description does not advise whether such a dilution has a positive or negative effect -- or any effect at all -- on the mechanical properties of the resultant blend or admixture. Jenkins et al. provides no description that talc inclusion improves

the physical properties of the PE, in the amounts Jenkins et al. employs. Indeed, Jenkins et al. only Claims the use of talc as a filler.

The main property of a filler is to add weight to a resin (so that the resin costs less). If adding weight is the suggestion to be gleaned from Jenkins et al., and dilution of the PE is for economic gain -- and that is the only express suggestion available from the Jenkins et al. written description -- a person skilled in the art would not logically deduce that adding less than 1 part per 100 parts of PE flowed from the written description of Jenkins et al.

Jenkins et al. provide no motivation for one skilled in the art to use such a small amount of talc in polyethylene based compositions.

To overcome the failures of Jenkins et al., the Office Action suggests that, apparently notwithstanding the absence of an overlap of the ranges, "Since Jenkins et al. teach talc merely used as a filler, it would have been obvious to one having ordinary skill in the art to have used less filler if e.g. manufacturing costs were not an issue." Page 7, second paragraph. However, this argument is problematic for at least the following reasons.

First, the suggested modification of Jenkins et al. apparently relies on impermissible hindsight based on the disclosure of the present application; in the present application, it has been determined that talc in the claimed range unexpectedly enhances creep resistance. See Examples, Table I, and page 8, lines 1-5. The possibility that manufacturing costs are not an issue is not suggested by Jenkins et al. Accordingly, since no other motivation is cited by the Office Action and since Jenkins et al. lacks any such motivation, the only possible basis for the asserted motivation is impermissible hindsight.

Second, Jenkins et al. provides the opposite motivation to that suggested in the Office Action. That is, the apparent motivation of Jenkins et al. is to use “fillers” to reduce manufacturing costs. In other words, Jenkins et al. teaches away from the suggested modification and, accordingly, fails to establish a *prima facie* case of obviousness against the claimed invention.

Third, even if the suggested modification was supported by a reference, one skilled in the art would still not find the claimed invention obvious based on the disclosure of Jenkins et al. Specifically, as suggested by the Office Action, if manufacturing costs were not an issue, one skilled in the art relying on Jenkins et al. would not use talc at all. Accordingly, because the proposed modification would render Jenkins et al. unsatisfactory for its intended purpose due to the absence of filler, there is no suggestion or motivation to make the proposed modification. See *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Furthermore, in this light, Jenkins et al. would be read not to have any talc and, thereby, would not teach or suggest the claimed range.

Fourth, even if the modification of Jenkins et al. was within the skill of the art, this is not sufficient to establish a *prima facie* case of obviousness without some objective reason to modify the teachings of the reference. See *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993).

#### **RESPONSE TO PATENT OFFICE ALLEGATIONS**

With respect to Jenkins et al. the Patent Office states, in the Final Action page 3, second full paragraph:

Since Jenkins et al. teach talc merely used as a filler, it would have been obvious to one having ordinary skill in the art to have used less filler if e.g. manufacturing costs were not an issue. Since Jenkins et al. teaches talc having a lower end range of 1%, the Examiner would like to note that only a very slight decrease in the weight % of talc would fall within the presently claimed range, i.e. 94 wt%, 95 wt%, etc.

As an initial matter, applicants are not claiming a method of using talc in varying amounts. Rather, as noted above in the SUMMARY OF THE INVENTION, the claims are directed to pipes and pipe couplings. The PTO position, excerpted immediately above, does not flow logically as a consequence from the actual description of Jenkins et al. If the Jenkins et al. object of fillers is to reduce the cost of the polyethylene—and thus more filler is better, why would the person of ordinary skill reduce the amount of the filler below the lowest limit described by Jenkins et al. If Jenkins et al. described varying talc content from 0 to 30%, the remainder of the actual Jenkins et al. disclosure would not result in applicants' claimed invention.

Thus to continue to apply Jenkins et al under 35 U.S.C. 103 is simply reversible legal error:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The

teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

**Wooster et al.**

With respect to Wooster et al. , the PTO advances

Since Wooster et al. teaches that it is known to include additives, such as talc, in molded polyethylene compositions, it would have been obvious to one having ordinary skill in the art to have included the talc in an effective amount to have imparted antiblocking and coefficient of friction characteristics...

The recited "talc is added in an amount effective to increase a creep resistance of said composition" and "wherein the composition is characterized by creep resistance(t)..and under a circumferential stress of 12.4 [of Claims 35 and 36] would be met by the polyethylene composition made obvious by Wooster " [Page 5 of the FINAL ACTION]

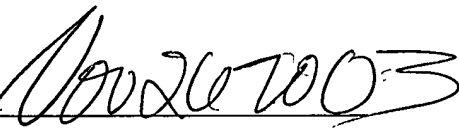
This underscored language obfuscates the MPEP Section 2131 requirements of an anticipatory reference [a thumbprint of case precedent] with Patent Office policy that relies and adopts the Graham v. John Deere analysis.

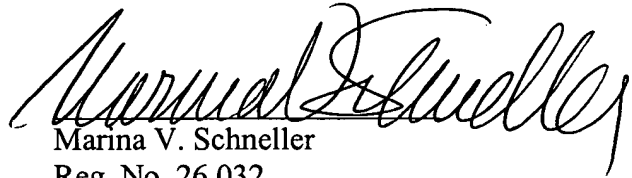
Application No. 09/115,229  
Applicants: Andre SCHEELEN *et al.*

Reversal of the Final Rejection(s) is respectfully solicited.

Respectfully submitted,

Date:

A handwritten signature in dark ink, appearing to read "Marina V. Schneller", written over a horizontal line.

A handwritten signature in dark ink, appearing to read "Marina V. Schneller", written over a horizontal line.

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## APPENDIX

### **IN THE CLAIMS:**

#### **Listing of Claims:**

Claims 1-25 (Previously Canceled).

Claim 26. An article of manufacture selected from the group consisting of a pipe and a pipe coupling comprising a polyethylene-based composition wherein the polyethylene exhibits a standard density, measured at 23°C according to ASTM Standard D 972, of greater than 940 kg/m<sup>3</sup> and wherein the polyethylene-based composition comprises talc in an amount of less than 1 part per 100 parts by weight of polyethylene.

Claim 27. The article of Claim 26, wherein said exhibits a particle size distribution situated between 0.2 and 15 microns and a mean particle size between 1 and 5 microns.

Claim 28. The article of Claim 26, comprising an amount of talc which is between 0.05 and 0.25 part per 100 parts by weight of polyethylene.

Claim 29. The article of Claim 26, wherein polyethylene is selected from the group consisting of ethylene homopolymer and ethylene copolymer containing, in total, from 0.01 to 10 mole % of at least one comonomer and exhibiting a standard density of greater than 943 kg/m<sup>3</sup>

and not exceeding  $960 \text{ kg/m}^3$  and a melt flow index, measured at  $190^\circ\text{C}$  under a load of 5 kg according to ISO Standard 1133 (1991), of 0.07 to 5g/10min.

Claim 30. An article of manufacture according to Claim 29, characterized in that the polyethylene is selected from the group consisting of ethylene copolymer containing, in total, from 0.05 to 5 mole % of butene and/or of hexene.

Claim 31. The article of manufacture of Claim 26, wherein said article is a pipe shaped by extrusion.

Claim 32. The article of manufacture of Claim 26, wherein said article is a pipe coupling shaped by injection.

Claim 33. The article of Claim 26, wherein talc is added in an amount effective to increase a creep resistance of said article.

Claim 34. The article of manufacture of Claim 26, characterized in that the talc exhibits an essentially lamellar texture.

Claim 35. The article of manufacture of Claim 26, which is characterized by creep resistance (t), wherein t = creep resistance expressed in terms of time to fracture, measured

according to ISO Standard 1167 (1996) at 20° C on a pipe having a diameter of 50 mm and a thickness of 3 mm and under a circumferential stress of 12.4.

Claim 36. The article of manufacture of Claim 27, which is characterized by creep resistance (t), wherein t = creep resistance expressed in terms of time to fracture, measured according to ISO Standard 1167 (1996) at 20° C on a pipe having a diameter of 50 mm and a thickness of 3 mm and under a circumferential stress of 12.4.

Claim 37. The article of manufacture of Claim 26, wherein the polyethylene is high density polyethylene.

Claim 38. An article of manufacture selected from the group consisting of pipe and pipe coupling, which comprises polyethylene wherein the polyethylene exhibits a standard density, measured at 23°C according to ASTM Standard D 972, of greater than 940 kg.m<sup>3</sup> and talc in an amount which does not exceed 0.5 part per 100 parts by weight of polyethylene.

Claim 39. The article of manufacture of Claim 38, wherein talc is added in an amount effective to increase a creep resistance of said article.

Claim 40. The article of manufacture of Claim 38, which is characterized by creep resistance (t), wherein t = creep resistance expressed in terms of time to fracture, measured

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Applicants: Andre SCHEELEN *et al.*

according to ISO Standard 1167 (1996) at 20° C on a pipe having a diameter of 50 mm and a thickness of 3 mm and under a circumferential stress of 12.4.

Claim 41. The article of manufacture of Claim 38, wherein the polyethylene is high density polyethylene.



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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit: 1772  
Examiner: R. Dye

In re application of

Applicants : André SCHEELLEN et al.

Appln. No. : 09/115,229

Filed : July 14, 1998

For : POLYETHYLENE-BASED COMPOSITION  
AND PROCESS FOR THE MANUFACTURE  
OF ARTICLES SHAPED FROM THE  
COMPOSITION

Atty. Dkt. : 32234-144216 (formerly SLVPE 3741.01)

DECLARATION

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I André Scheelen, one of the inventors of the above-identified application declare and state the following:

We have found that the addition of a small amount of talc to polyethylene provides a composition characterized by a markedly improved resistance to hydrostatic pressure and a markedly improved creep resistance (as stated at page 1, lines 21-23, of our application). The addition of small amounts of talc, of less than 1 part by weight per 100 parts by weight of high-density polyethylene, provides compositions which make possible the manufacture of shaped articles, such as pipes, for which the creep resistance is significantly improved without affecting the other mechanical properties of the said shaped articles (page 2, lines 9-15). Consequently, the resins are very suitable for the manufacture of high pressure pipes (see application, page 1, lines 15-23).

These unexpected results were demonstrated in the Application by the comparison of Example 1 (according to the invention) and Comparative Example (see Table I at page 8).

In order to prove that the quantity of talc added to the polyethylene compositions is critical, we have conducted the following new comparative experiment, which was undertaken under my supervision:

A polyethylene composition was prepared such as disclosed in Example 1 of the patent application but by adding 10.5 g of talc (instead of 1 g) to 980.4 g of polyethylene resin (instead of 989.9 g). Hence, the composition contained 1.07 g of talc per 100 g of polyethylene. \*

The mechanical properties of this composition were measured according to the methods disclosed in the patent application and were compared to those measured on the compositions of Example 1 and of the Comparative Example already disclosed in the Application (see Table hereunder).

	Example 1 <i>Page 7 of Spec.</i>	Comparative example <i>0 parts (without talc)</i>	New comparative example (with more than 1 part of talc per 100 parts of polyethylene) *
T (hours)	342	134	310
RCP (bar) (at 0°C) *	9.5 to 10	10 to 12	7 to 7.5

\*measured according to the method disclosed in the Application, but at 0°C instead of -15°C.

As can be seen, compositions containing more than 1 part of talc per 100 parts of polyethylene have a RCP value lower than the compositions according to the invention or than compositions containing no talc. Moreover, their creep resistance (t) is slightly lower than the composition according to the invention.

Hence compositions comprising more than 1 part of talc per 100 parts of polyethylene do not exhibit an improved creep resistance without a deleterious affect on the other mechanical properties. Such compositions are less suitable for making pipes or pipe fittings.

These comparative examples clearly show the criticality of the amount of talc added to the polyethylene.

I further declare that all statements are true and believed to be true and understand that willful false statements may jeopardize the validity of any patent issuing hereon and may result in fine and/or imprisonment.

AUGUST 3, 2001  
Date

André Scheele  
André Scheelen